Blackline Master B02: Mendeleev's Element Cards

H Mass = 1 amu Melting point -259 ^{0}C Density 0.0909 g/cm^3 Color: colorless R^2O	Li Mass = 7 amu Melting point 180.5 ^{0}C Density 0.53 g/cm^3 Color: silvery R^2O	Be Mass = 9 amu Melting point 1278 ^{0}C Density 1.8477 g/cm^3 Color: gray RO
B Mass = 11 amu Melting point 2300 ^{0}C Density 2.34 g/cm^3 Color: black-brown (very dark gray) R^2O^3	C Mass = 12 amu Melting point 3500 ^{0}C Density 2.62 g/cm^3 Color: May be black RO^2 RH^4	N Mass = 14 amu Melting point –209.9 ^{0}C Density 1.25 g/cm^3 Color: colorless R^2O^5 RH^3
O Mass = 16 amu Melting point –218.4 ^{0}C Density 1.429 g/cm^3 Color: colorless RO^3 RH^2	F Mass = 19 amu Melting point –219.6 ^{0}C Density 1.69 g/cm^3 Color: pale yellow green R^2O^7 RH	Na Mass = 23 amu Melting point 97.8 ^{0}C Density 0.971 g/cm^3 Color: silvery R^2O
Mg Mass = 24 amu Melting point 650 ^{0}C Density 1.738 g/cm^3 Color: grayish- silver RO	Al Mass = 27 amu Melting point 660 ^{0}C Density 2.7 g/cm^3 Color: Silver R^2O^3	Si Mass = 28 amu Melting point 1410 ^{0}C Density 2.329 g/cm^3 Color: gray / blue cast RO^2 RH^4

P Mass = 31 amu Melting point 44.1 ^{0}C Density 1.82 g/cm^3 Color: no color/red/white R^2O^5 RH^3	S Mass = 32 amu Melting point 112.8 ^{0}C Density 2.07 g/cm^3 Color: yellow RO^3 RH^2	Cl Mass = 35.5 amu Melting point –100.9 ^{0}C Density 3.214 g/cm^3 Color: green R^2O^7 RH
K Mass = 39 amu Melting point 63.65 ^{0}C Density 0.862 g/cm^3 Color: silvery R^2O	Ca Mass = 40 amu Melting point 839 ^{0}C Density 1.55 g/cm^3 Color: silvery RO	? Mass = 44 amu Melting point _____ ^{0}C Density _____g/cm^3 Color: _____ Formula:
Ti Mass = 48 amu Melting point 1660 ^{0}C Density 4.54 g/cm^3 Color: silvery RO^2 RH^4	V Mass = 51 amu Melting point 1890 ^{0}C Density 5.8 g/cm^3 Color: silvery R^2O^5 RH^3	Cr Mass = 52 amu Melting point 1857 ^{0}C Density 7.19 g/cm^3 Color: silvery RO^3 RH^2
Mn Mass = 55 amu Melting point 1245 ^{0}C Density 7.43 g/cm^3 Color: silvery/gray R^2O^7 RH	Fe Mass = 56 amu Melting point 1535 ^{0}C Density 7.86 g/cm^3 Color: silvery RO^4	Co Mass = 59 amu Melting point 1495 ^{0}C Density 8.9 g/cm^3 Color: silver RO^4

Ni Mass = 59 amu Melting point 1453 ^{0}C Density 8.9 g/cm^3 Color: silvery RO^4	Cu Mass = 63 amu Melting point 1083 ^{0}C Density 8.96 g/cm^3 Color: red / orange metallic R^2O	Zn Mass = 65 amu Melting point 419.58 ^{0}C Density 7.133 g/cm^3 Color: metallic blue to pale gray RO
?? Mass = 68 amu Melting point _____ ^{0}C Density _____g/cm^3 Color: _____ Formula:	??? Mass = 72 amu Melting point _____ ^{0}C Density _____g/cm^3 Color: _____ Formula:	As Mass = 75 amu Melting point 817 ^{0}C Density 5.72 g/cm^3 Color: gray R^2O^5 RH^3
Se Mass = 78 amu Melting point 217 ^{0}C Density 4.79 g/cm^3 Color: metallic gray RO^3 RH^2	Br Mass = 80 amu Melting point –7.2 ^{0}C Density 3.119 g/cm^3 Color: red-brown R^2O^7 RH	Rb Mass = 85 amu Melting point 38.89 ^{0}C Density 1.532 g/cm^3 Color: silver R^2O
Sr Mass = 87 amu Melting point 769 Density 2.54 g/cm^3 Color: silvery white metallic RO	Yt Mass = 88. amu Melting point 1523 ^{0}C Density 4.469 g/cm^3 Color: silvery white metallic R^2O^3	Zr Mass = 90 amu Melting point 1852 ^{0}C Density 6.49 g/cm^3 Color: grayish metallic RO^2 RH^4

Nb Mass = 94 amu Melting point 2468 ^{0}C Density 8.57 g/cm^3 Color: silvery R^2O^5 RH^3	Mo Mass = 96 amu Melting point 2617 ^{0}C Density 10.22 g/cm^3 Color: silvery RO^3 RH^2	Ru Mass = 104 amu Melting point 2250 ^{0}C Density 12.2 g/cm^3 Color: silvery RO^4
Rh Mass = 104 amu Melting point 1966 ^{0}C Density 12.41g/cm^3 Color: silvery RO^4	Pd Mass = 106 amu Melting point 1552 ^{0}C Density 12.02 g/cm^3 Color: silvery white RO^4	Ag Mass = 108 amu Melting point 961.93 ^{0}C Density 10.5 g/cm^3 Color: silver R^2O
Cu Mass = 63 amu Melting point 1083 ^{0}C Density 8.96 g/cm^3 Color: red / orange metallic RO^4	Tc Mass = 100 amu Melting point 2157 ^{0}C Density 11.5 g/cm^3 Color: silvery /gray metallic R^2O^7 RH	? (Sc) **Key** Mass = 44.95 amu Melting point 1539 ^{0}C Density 2.98 g/cm^3 Color: silvery R^2O^3
??? (Ge) **Key** Mass = 72 amu Melting point 937.4 ^{0}C Density 5.323 g/cm^3 Color: grayish RO^2 RH^4	?? (Ga) **Key** Mass = 68 amu Melting point 29.78 ^{0}C Density 5.907 g/cm^3 Color: white/silvery R^2O^3	Ag Mass = 108 amu Melting point 961.93 ^{0}C Density 10.5 g/cm^3 Color: silver RO^4

The above cards are the first 44 elements in Mendeleev Periodic Chart including the three elements (Ga, Ge and Sc) that had not been discovered. These three cards should be pulled from the deck until after students have recorded their own predictions for the properties (range). Notice there are two cards for Ag and Cu.

This page is to be used as a template for reproducing the blank cards on which students record their predictions of the properties for the three missing elements.

? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:	?? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:	??? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:
? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:	?? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:	??? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:
? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:	?? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:	??? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:
? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:	?? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:	??? Mass = __________ amu Melting point _______ ^{0}C Density _________g/cm^3 Color: ________________ Formula:

This page and the next page should be used only if you wish to extend this activity to include all of the elements in Mendeleev's original periodic table.

Ba Mass = 137 amu Melting point 725 ^{0}C Density 3.51 g/cm^3 Color: silver RO	Di Mass = 138 amu Melting point 920 ^{0}C Density 6.7 g/cm^3 Color: silvery / white R^2O^3	Ce Mass = 140 amu Melting point 795 ^{0}C Density 6.773 g/cm^3 Color: gray metallic RO^2 RH^4
Er Mass = 178 amu Melting point 1522 ^{0}C Density 8.795 g/cm^3 Color: gray metallic R^2O^3	Ta Mass = 182 amu Melting point 2996 ^{0}C Density 16.65 g/cm^3 Color: gray metallic R^2O^5 RH^3	U Mass = 240 amu Melting point 1132 ^{0}C Density 18.95 g/cm^3 Color: silvery RO^3 RH^2
W Mass = 184 amu Melting point 3410 ^{0}C Density 19.3 g/cm^3 Color: silver RO^3 RH^2	Os Mass = 195 amu Melting point 3045 ^{0}C Density 22.4 g/cm^3 Color: silvery RO^4	Ir Mass = 197 amu Melting point 2410^{0}C Density 22.5 g/cm^3 Color: silvery / white RO^4
Pt Mass = 198 amu Melting point 1772 ^{0}C Density 21.45 g/cm^3 Color: silvery RO^4	Au Mass = 199 amu Melting point 1064^{0}C Density 19.32 g/cm^3 Color: gold R^2O	Hg Mass = 200 amu Melting point –38.87 ^{0}C Density 13.456 g/cm^3 Color: silver RO

This page should be used only if you wish to extend this activity to include all of the elements in Mendeleev's original periodic table.

Tl Mass = 204 amu Melting point 303.5 ^{0}C Density 11.85g/cm^3 Color: silvery white metallic R^2O^3	Pb Mass = 207 amu Melting point 327.5 ^{0}C Density 11.34 g/cm^3 Color: blue / white metallic RO^2 RH^4	Bi Mass = 208 amu Melting point 271.3 ^{0}C Density 9.8 g/cm^3 Color: red/ white metallic R^2O^5 RH^3
Th Mass = 231 amu Melting point 1750 ^{0}C Density 11.72 g/cm^3 Color: silvery RO^2 RH^4	Au Mass = 199 amu Melting point 1064^{0}C Density 19.32 g/cm^3 Color: gold RO^4	Cs Mass = 133 amu Melting point 28.55 ^{0}C Density 1.873 g/cm^3 Color: silver R^2O
J (I) Mass = 127 amu Melting point 113 ^{0}C Density 4.9 g/cm^3 Color: bluish-black solid purple gas R^2O^7 RH	Te Mass = 125 amu Melting point 449.5 ^{0}C Density 6.24 g/cm^3 Color: silvery gray RO^3 RH^2	Sb Mass = 122 amu Melting point 630 ^{0}C Density 6.68 g/cm^3 Color: silvery gray-blue R^2O^5 RH^3
Cd Mass = 112 amu Melting point 320.9 ^{0}C Density 8.65 g/cm^3 Color: silvery RO	In Mass = 113 amu Melting point 156.61 ^{0}C Density 7.31 g/cm^3 Color: silvery R^2O^3	Sn Mass = 118 amu Melting point 231.9 ^{0}C Density 7.31 g/cm^3 Color: metallic gray RO^2 RH^4